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Yuji KIYOKAWA (seal)

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[Inventor]

[Address] c/o Minolta Co., Ltd.
Osaka Kokusai Bldg., 3-13,
2-Chome, Azuchi-Machi, Chuo-ku, Osaka-Shi

[Name] Tsutomu HONDA

[Inventor]

[Address] c/o Minolta Co., Ltd.
Osaka Kokusai Bldg., 3-13,
2-Chome, Azuchi-Machi, Chuo-ku, Osaka-Shi

[Name] Kiyoshi SEIGENJI

[Inventor]

[Address] c/o Minolta Co., Ltd.
Osaka Kokusai Bldg., 3-13,
2-Chome, Azuchi-Machi, Chuo-ku, Osaka-Shi

[Name] Shigeto OHMORI

[Inventor]

[Address] c/o Minolta Co., Ltd.
Osaka Kokusai Bldg., 3-13,
2-Chome, Azuchi-Machi, Chuo-ku, Osaka-Shi

[Name] Toshihiro HAMAMURA

[Applicant]

[Identification Number] 000006079

[Name] Minolta Co., Ltd.

[Representative] Osamu KANAYA

[Agent]

[Identification Number] 100085501

[Patent Attorney]

[Name or Corporate Name] Shizuo SANO

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[Title of the Invention] IMAGE SHOOTING APPARATUS

[Claims]

5 [Claim 1]

An image shooting apparatus, comprising:

a silver salt picture shooting section having a silver salt picture recording means
and a silver salt information recording means;

10 a video signal recording section having a video signal recording means and a
video information recording means; and

a silver salt film individual identification number/frame number output means
for outputting an individual identification number and a frame number of a silver salt
film used as a recording medium for the silver salt picture shooting section,

15 wherein said silver salt information recording means records an individual
identification number outputted from the silver salt film individual identification
number/frame number output means onto said silver salt film, and

20 wherein said video information recording means records an individual
identification number and a frame number outputted from the silver salt film
individual identification number/frame number output means into an image signal
corresponding to said individual identification number and said frame number.

[Claim 2]

An image shooting apparatus as claimed in claim 1,

25 wherein the silver salt information recording means is capable of recording
various items of information other than information outputted from the silver salt film
individual identification number/frame number output means.

[Claim 3]

An image shooting apparatus as claimed in claim 1,

wherein the video information recording means is capable of recording various

items of information other than information outputted from the silver salt film individual identification number/frame number output means.

[Claim 4]

An image shooting apparatus as claimed in claim 2 or 3,

5 wherein the various items of information include at least two out of date and time, printing information recording location, print aspect ratio, light source nature, number of prints, title, lens focal length, aperture value, shutter speed, exposure compensation value, film ISO sensitivity, subject luminance, photometry method, television display aspect ratio.

10 [Claim 5]

An image shooting apparatus as claimed in claim 3, further comprising:

a signal conversion means for converting the various items of information into a character signal,

15 wherein the various items of information converted by the signal conversion means are recorded as an image signal by the video signal recording means.

[Claim 6]

An image shooting apparatus as claimed in one of claims 1 to 4,

20 wherein, when silver salt picture shooting is performed while video signal recording is not in progress, the video signal recording means records a video corresponding to said silver salt picture, and the video information recording means records information corresponding to said silver salt picture outputted from the silver salt film individual identification number/frame number output means, or records this information together with various items of information as to said silver salt picture.

[Claim 7]

25 An image shooting apparatus as claimed in claim 1,

wherein, when silver salt picture shooting is performed while video signal recording is in progress, the video signal recording means records a video corresponding to said silver salt picture, and the video information recording means

records information corresponding to said silver salt picture outputted from the silver salt film individual identification number/frame number output means, or records this information together with various items of information as to said silver salt picture.

[Claim 8]

- 5 An image shooting apparatus as claimed in claim 1, further comprising:
a video recording medium individual identification number output means for outputting an individual identification number of a video recording medium,
wherein the silver salt information recording means records the individual identification number of the video recording medium outputted from the video
10 recording medium individual identification number output means onto a corresponding silver salt picture shooting section, and the video information recording means records the individual identification number of the video recording medium outputted from the video recording medium individual identification number output means.

15 [Detailed Description of the Invention]

[0001]

[Field of the Invention]

- The present invention relates to a camera that functions both as a still camera and as a video camera, and particularly to an image shooting apparatus in
20 which the recording of various items of shooting-related information and the management of index information are performed in novel manners.

[0002]

[Prior Art]

- An image shooting apparatus of this type is provided with various operation
25 modes such as a silver salt shooting mode, a video shooting mode, a simultaneous shooting mode for simultaneously performing video movie shooting and silver salt picture shooting, a video playback mode, a still video shooting mode, and an edit mode for editing the information recorded in the shooting information recording

portion on a silver salt film. Of these modes, an appropriate one is selected as required to perform shooting, reproduction, editing, and other operations.

[0003]

5 In such an image shooting apparatus which functions both as a still camera and as a video camera, it is often necessary to confirm shooting records by contrasting still pictures and a video picture immediately or in a certain time lag after shooting. It is also necessary to record information representing the relationship between the still pictures and the video picture as a database after shooting.

[0004]

10 As a conventional example, Japanese Laid-Open Utility Model No. S63-192773 and Japanese Laid-Open Patent No. H5-75902 disclose an image shooting apparatus in which only frame numbers of a silver salt film are mixed as a character signal into an image signal. Moreover, Japanese Laid-Open Patent No. 3-27173 discloses a camera equipped with an electric display device functioning also as a viewfinder, in which
15 only release viewing can be performed by use of the electric display device.

[0005]

[Problems to be Solved by the Invention]

20 However, in the former image shooting apparatus, in order to cope with the case where a plurality of silver salt films are used simultaneously with one magnetic tape serving as an image recording medium, only frame numbers of a silver salt film is mixed as a character signal with an image signal, and the frame numbers are superimposed on the image signal when displayed. Accordingly, it is difficult to retrieve entries in the database and, in particular, to cope with the case where a silver salt film is exchanged at its midpoint leaving the remaining portion unused.
25 Moreover, in the latter camera, since it does not have a function as a video camera, an image signal is not kept in a secondary storage device.

[0006]

An object of the present invention is to provide an image shooting apparatus

that functions both as a still camera and as a video camera and in which the number of a silver salt film is written to the film itself and the film number and frame numbers are written into the image signal that represents the data recorded on that film in order to achieve easy retrieval of data from the database.

5 [0007]

[Means for Solving the Problem]

To achieve the above object, according to the present invention, an image shooting apparatus is provided with: a silver salt picture shooting section having a silver salt picture recording means and a silver salt information recording means; a
10 video signal recording section having a video signal recording means and a video information recording means; and a silver salt film individual identification number/frame number output means for outputting an individual identification number and a frame number of a silver salt film used as a recording medium for the silver salt picture shooting section.

15 [0008]

In this image shooting apparatus, the silver salt information recording means records an individual identification number outputted from the silver salt film individual identification number/frame number output means onto said silver salt film, and the video information recording means records an individual identification
20 number and a frame number outputted from the silver salt film individual identification number/frame number output means into an image signal corresponding to said individual identification number and said frame number.

[0009]

In this structure, the silver salt information recording means or the video
25 information recording means may be capable of recording various items of information other than information outputted from the silver salt film individual identification number/frame number output means. In this case, the various items of information include at least two out of date and time, printing information recording location, print

aspect ratio, light source nature, number of prints, title, lens focal length, aperture value, shutter speed, exposure compensation value, film ISO sensitivity, subject luminance, photometry method, television display aspect ratio.

[0010]

5 It is also possible to additionally provide a signal conversion means for converting the various items of information into a character signal so that the various items of information converted by the signal conversion means are recorded as an image signal by the video signal recording means.

[0011]

10 Preferably, when silver salt picture shooting is performed while video signal recording is not in progress, i.e. during silver salt shooting, and also when silver salt picture shooting is performed while video signal recording is in progress, i.e. during simultaneous shooting, the video signal recording means records a video corresponding to said silver salt picture, and the video information recording means
15 records information corresponding to said silver salt picture outputted from the silver salt film individual identification number/frame number output means, or records this information together with various items of information as to said silver salt picture.

[0012]

20 To cope with cases where one silver salt film corresponds to a plurality of video recording media, it is possible to additionally provide a video recording medium individual identification number output means for outputting an individual identification number of a video recording medium. In this case, the silver salt information recording means records the individual identification number of the video recording medium outputted from the video recording medium individual
25 identification number output means onto a corresponding silver salt picture shooting section, and the video information recording means records the individual identification number of the video recording medium outputted from the video recording medium individual identification number output means.

[0013]

[Workings]

In the above structure, it is possible, on the one hand, to simultaneously record a silver salt picture and silver salt information, and, on the other hand, in the image signal recording section, to simultaneously record an image signal and image information. As these are recorded, the individual identification number of the silver salt film and the frame number are recorded simultaneously. This makes it possible to confirm, immediately or in a certain time lag after shooting, the pictures recorded as image signals by the still camera, and also to record correspondence-related information to form a database. The individual identification number is recorded on the silver salt film and, as opposed to conventional examples in which it is simply superimposed on the image signal, the individual identification number and the frame number are written into the image signal as information signals. This helps achieve easy retrieval of data from the database.

[0014]

[Embodiment]

Hereinafter, an embodiment of the present invention will be described with reference to the drawings. Fig. 1 schematically shows the structure of the embodiment. As shown in Fig. 1, the image shooting apparatus according to the present embodiment includes a camera body C, a main lens L serving as a main optical system, and a lighting and flashing unit F (hereinafter referred to as the "flash-and-light"). The video shooting optical system and the silver salt (silver halide) shooting optical system, which will be described later, are formed of common structural members.

[0015]

In the following description of the embodiment, for easier reference between the description and the drawings, the reference designations of the components of the camera body C begin with C, those of the main lens L begin with L, those of the flash-

and-light F begin with F, and those of the operation unit COP provided in the camera body C begin with COP.

[0016]

Although the main lens L and the flash-and-light F are constructed separately
5 from the camera body C in this embodiment, the present invention includes a structure in which the camera body C and the main lens L, the camera body C and the flash-and-light F, or these three portions are formed as one unit. The video shooting optical system and the silver salt shooting optical system may be formed separately from each other. Moreover, although this embodiment adopts a shooting system of an
10 SLR type in which a shooting system for silver salt shooting and a shooting system for electronic shooting are built into one unit, it is also possible to use separate shooting systems of different types for silver salt shooting and for electronic shooting.

[0017]

As shown in Fig. 1, the camera body C is provided with a silver salt picture
15 shooting section including a shutter driver C06, a shutter C07, a film C08, and a film advancing controller C09 (the components thus far mentioned constitute a silver salt picture recording means), and a silver salt information recording section (a silver salt information recording means) C37. Moreover, the camera body C is also provided with a video signal recording/reproduction section including an image processor C24, a
20 recording/reproduction converter C25, a head C26, an EVF C27 serving as an electric display device, a recording medium C28, and a recording medium driver C36.

[0018]

First, the structure of the main lens L will be described below, with reference to Fig. 1. L01 and L03 represent operation rings manually operated by the user. L01
25 represents a focusing operation ring and L03 represents a zooming operation ring. L13 represents a stationary barrel. L02 and L04 represent operation ring condition detectors which detect rotation of the operation rings L01 and L03, respectively. Typically, the detectors L02 and L04 comprise encoders.

[0019]

L05 represents a focal length detector for detecting the focal length of the main lens L. L06 represents a lens microcomputer serving as a operational controller of the main lens L. L07 represents a zooming motor for zooming the main lens L. L08
5 represents a zooming motor monitor for detecting the rotation condition of the zooming motor L07. The monitor L08 comprises, for example, a photo-interrupter.

[0020]

L09 represents a focusing motor for focusing the main lens L. L10 represents an AF/MF switching button for switching between automatic focusing and manual
10 focusing. L11 represents a main lens aperture diaphragm. L12 represents a main lens aperture diaphragm controller. The main lens aperture diaphragm controller L12 includes a stepping motor for actuating the aperture diaphragm, and an aperture condition detector.

[0021]

15 The focusing and zooming operation rings L01 and L03 are fitted on the peripheral surface of the stationary barrel L13 to be rotatable about the optical axis of the main lens L. Rotation of the focusing operation ring L01 activates power focusing. Rotation of the zooming operation ring L03 activates power zooming.

[0022]

20 Next, the structure of the camera body C will be described below. C01 represents a camera microcomputer serving as a operational controller of the camera body C. The camera microcomputer C01 exchanges information with the main lens L through data/power-supply contacts C30. As to the flash-and-light F, the camera microcomputer C01 exchanges information with the operational controller F01 of the
25 flash-and-light F through contacts provided in an accessory shoe C20. The external view of the shoe C20 for attaching an external flash-and-light is shown in Fig. 2.

[0023]

C05 represents an AF auxiliary mirror provided at the rear of the above-

mentioned pellicle mirror C04. The subject light having passed through the main lens L is split by the pellicle mirror C04, and one of the thus split light beams is further split by the AF auxiliary mirror C05 and directed to a focus detector C02. The focus detector C02 transmits focus information to the camera microcomputer C01. The focus information processed by the camera microcomputer C01 is transmitted to the lens microcomputer L06, which then issues a command for driving the focusing motor L09 to perform focusing.

[0024]

C06 represents a shutter driver which opens and closes the shutter C07 in response to a command from the camera microcomputer C01. More specifically, the camera microcomputer C01 issues a command signal to the shutter driver C06 based on information from the operation unit COP, a brightness detector C12 and others. C08 represents a film, whose surface is exposed to the light coming from the subject through the opening created by the releasing of the shutter C07 so that a latent image of the subject is formed thereupon. C09 represents a film advancing controller for driving an incorporated motor to wind and rewind the film.

[0025]

The other of the light beams split by the pellicle mirror C04 is directed through a condenser lens C10, a reflecting mirror C11, an ND filter C13, a relay optical system including a relay lens C14, an optical low-pass filter C16, and an IR cut filter C17 to a CCD image sensor C21. The reflecting mirror C11 is partially semi-transparent, so that part of the light is admitted to the brightness detector C12 through the semi-transparent portion for the detection of the brightness of the subject.

[0026]

C15 represents an ND filter controller for controlling the ND filter C13 based on ND density information set by the camera microcomputer C01 based on the difference in sensitivity between the film C08 loaded in the camera body C and the CCD image sensor C21 and based on the brightness of the subject detected by the brightness

detector C12. The relay optical system is provided with a relay aperture diaphragm C18, which is controlled by a relay aperture diaphragm controller C19 so that the quantity of the light directed to the image sensor C21 is controlled.

[0027]

5 The CCD image sensor C21 converts the light from the subject into an electric signal based on driving pulses generated by a CCD driving pulse generator C23 in response to a command from the camera microcomputer C01. The photoelectrically converted electric signal is transmitted to an image forming processor C22, then subjected to analog processing such as sampling, then subjected to analog-to-digital
10 (A/D) conversion, and then transmitted to an image processor C24.

[0028]

The image processor C24 comprises a processor unit for performing γ (gamma) correction, white balance (WB) correction, and luminance/color-difference (Y/C) conversion, a memory unit for storing image data from the processor unit, an
15 operational controller unit for processing image in response to a command from the camera microcomputer C01, a memory unit for storing image signals from the operational controller unit, and a superimposer unit for performing superimposing. The image signals processed by the image processor C24 are transmitted to an EVF (Electronic ViewFinder) unit C27, a recording/reproduction converter C25, and an
20 external output port C32 which is also shown in Fig. 5. In Fig. 1, the part from α to α of the transmission path between the image processor C24 and the external output port C32 is not shown for reasons of space.

[0029]

The EVF unit C27 for displaying images comprises a viewfinder unit including
25 a liquid crystal finder, a cathode ray tube (CRT), or the like, and a converter unit for converting image signals from the image processor C24 into signals for driving the display unit. C35 represents an operation indication unit for displaying information on operation of the operation unit COP. The operation indication unit includes a

large-size liquid crystal display panel C35A as shown in Figs. 2 and 6, and a lamp C35B as shown in Fig. 4.

[0030]

The recording/reproduction converter C25 encodes image signals from the image processor C24, sound signals from a sound processor C31, and other signals and information from the camera microcomputer C01 into signals adapted for a recording format, and transmits the encoded signals to a head C26. C28 represents a recording medium. As the recording medium, a magnetic tape, a magneto-optical disk, a solid-state memory (RAM), or the like may be used. In this embodiment, a videocassette having a magnetic tape loaded therein is used as a representative of the recording medium.

[0031]

C36 represents a recording medium driver for driving the recording medium C28. The signals transmitted to the head C26 are recorded onto the recording medium C28 driven by the recording medium driver C36. Likewise, the data recorded on the recording medium C28 are read out by the head C26, and, through the decoding performed by the recording/reproduction converter C25, reproduced as image signals, sound signals, other signals, and information, which are then transmitted to the image processor C24 and to the sound processor C31.

[0032]

C37 represents a silver salt shooting information recording section for recording various information onto an information recording area on a film, and it includes a converter unit for converting the information from the camera microcomputer C01 into a format for recording, and a head for performing recording. In some cases, the silver salt information recording section C37 is so constructed that it can perform reproduction as well as recording.

[0033]

Sound is picked up by a stereophonic microphone C34 provided in a suitable

position on the front surface of the camera body C as shown in Fig. 4, and is processed by the sound processor C31. The sound signals processed by the sound processor C31 are transmitted to the recording/reproduction converter C25, to a speaker C33, and to an output port C32. In Fig. 1, the part from *b* to *b* of the transmission path between the sound processor C31 and the microphone C34 is not shown for reasons of space. C29 represents a battery provided in the camera body C to supply power to the camera body C and to the main lens L.

[0034]

C03 represents a camera-shake detector which detects a camera-shake of the entire camera system with the main lens L attached to the camera body C, and transmits the detection signal to the camera microcomputer C01. The camera-shake compensation in the video signal shooting section is performed by controlling the readout area of the CCD image sensor C21.

[0035]

Next, the operation unit COP will be described below with reference to the external views of the present embodiment shown in Figs. 2 to 5. COP09 represents an operation mode selecting switch which also serves as a main switch. By operating the switch COP09, it is possible to select one of six operation modes OFF, P_M , P_H , M_V , V, SV and E in total.

[0036]

More specifically, the selecting switch COP09 is switched to the OFF position to turn the entire camera off, to the P_M position to activate a simultaneous shooting mode in which video movie shooting and silver salt shooting can be simultaneously performed, to the P_H position to activate a silver salt shooting mode in which silver salt shooting can be performed, to the M_V position to activate a video shooting mode in which video movie shooting can be performed, to the V position to activate a video reproduction mode in which a recorded video can be reproduced, to the SV position to activate a still video shooting mode in which still video image shooting can be

performed, and to the E position to activate an edit mode in which the information recorded on a shooting information recording portion, which will be described later, of the silver salt film C08 can be edited.

[0037]

5 COP01 represents a release button used in silver salt shooting. COP02 represents a switching dial for varying aperture values (AV) and time values (TV) and for switching modes in silver salt shooting and video movie shooting. By turning the switching dial COP02 while holding down a subsequently-described mode button COP07, a shooting scene is selected. By turning the switching dial COP02 while
10 holding down a subsequently-described program button COP12, a mode is selected from among an A (aperture priority) mode, an S (shutter speed priority) mode, and an M (manual) mode.

[0038]

COP03 represents a deck open button for ejecting a videocassette tape C28
15 serving as a recording medium. Operation of the button COP03 opens a grip portion to allow loading and unloading of the videocassette tape C28. COP04 represents an operation button which functions as a fade-out button for starting fade-out in video shooting mode (M_v) and simultaneous shooting mode (P_M) and which functions as a trigger button for triggering a preview of a still image in silver salt shooting mode (P_H)
20 and still video shooting mode (SV).

[0039]

COP05 represents a lens exchange button for detaching the main lens L from the camera body C. COP06 represents a red-eye reduction button for activating a red-eye reduction function in flash shooting in silver salt shooting mode (P_H) and still
25 video shooting mode (SV). COP07 represents a mode button which is operated together with the mode switching dial COP02 to select a shooting scene such as a portrait scene or a sports scene in simultaneous shooting mode (P_M), silver salt shooting mode (P_H), video shooting mode (M_v), and still video shooting mode (SV).

[0040]

COP08 represents a film cartridge exchange button for loading and unloading a film cartridge. COP10 represents a frame aspect ratio changing switch for silver salt shooting. COP11 represents a video movie frame size changing switch. COP12 represents a program button which, when operated alone, switches the shooting mode to a program mode. By operating the program button COP12 together with the mode switching dial COP02, a mode can be selected from among the A (aperture priority) mode, the S (shutter priority) mode, and the M (manual) mode in simultaneous shooting mode (P_M), silver salt shooting mode (P_H), video shooting mode (M_V), and still video shooting mode (SV).

[0041]

COP13 represents a zooming button which varies the focal length of the main lens L as the zooming ring of the main lens L does. COP14 represents a recording ON/OFF button which controls starting and stopping of recording onto the recording medium C28 in simultaneous shooting mode (P_M) and video shooting mode (M_V). In silver salt shooting mode (P_H) and still video shooting mode (SV), by pressing the operation button COP04 while holding down the button COP14, an image shot with the aperture diaphragm open is displayed in the EVF unit C27. By operating the switching dial COP02 while holding down the button COP14, the value of AV is varied.

[0042]

COP15 represents a camera-shake compensation ON/OFF button for activating and deactivating camera-shake compensation in simultaneous shooting mode (P_M) and video shooting mode (M_V). In silver salt shooting mode (P_H) and still video shooting mode (SV), by operating the mode switching dial COP02 while holding down the button COP15, exposure compensation is performed.

[0043]

COP16 represents a first liquid crystal unit pop-up button. By operating the button COP16, a liquid crystal unit forming the EVF unit C27 is popped up, and the

grip portion is unlocked to allow the EVF unit C27 together with the grip portion to rotate around the camera body C. Thus, it is possible to shoot not only at eye level but also at waist level.

[0044]

5 COP17 represents a forced flashing button for forcibly firing a flash in silver salt shooting mode (P_H) and still video shooting mode (SV). COP18 represents a message display ON/OFF button for turning on and off messages displayed in the EVF unit C27. COP19 represents a button for controlling sound volume and picture qualities (brightness, hue, and others) of images displayed in the EVF unit C27 in V mode.

10 [0045]

COP20 represents a second liquid crystal pop-up button. By operating the button COP20, the liquid crystal unit forming the EVF unit C27 is unfolded longitudinally. Thus, it is possible, for example, to shoot at waist level holding the camera vertically in silver salt shooting mode (P_H) and still video shooting mode (SV).

15 [0046]

COP21 represents an automatic rewinding button for starting rewinding of a film even at a midpoint in a roll. COP22 represents a single-shot/continuous/self-timer button for switching among single-shot, continuous, and self-timer shooting in silver salt shooting mode (P_H) and still video shooting mode (SV). In Figs. 5 and 6,

20 C40 represents a lid of a battery cavity and C41 represents a tripod hole.

[0047]

Fig. 6 shows an example of the large-size liquid crystal display panel C35A of the operation indication unit C35. As shown in the figure, the large-size liquid crystal display panel C35A includes a camera operation mode indicator, a tape run counter, a date indicator, a shutter speed indicator, an exposure compensation indicator, a red-eye reduction indicator, an aperture value/exposure compensation value indicator, a mode indicator, a battery level indicator, a self-timer mark, a film counter, a film cartridge mark, a wireless flash indicator, a winding mode indicator, a shooting scene

25

selection indicator, a manual focus indicator, and others.

[0048]

The shooting scene selection indicator is for displaying the conditions of a shooting scene selected from portrait, landscape, close-up, sports, and night
5 portrait/night scenes. The lamp C35B shown in Fig. 5 is lit in self-timer shooting and in red-eye reduction shooting.

[0049]

Back in Fig. 3, COP30 to COP34 represent a group of buttons for controlling video. COP30 represents a rewind button, COP31 represents a playback button,
10 COP32 represents a fast-forward button, COP33 represents a stop button, and COP34 represents a pause button.

[0050]

Back in Fig. 2, COP 35 represents a counter ON/OFF button for turning on and off a counter that is displayed in the EVF unit C27 in simultaneous shooting (P_M) mode
15 and video shooting mode(M_V). COP36 represents an automatic button for switching between automatic and manual operation of white balance (WB) adjustment in simultaneous shooting mode (P_M) and video shooting mode (M_V). COP37 represents a menu button for turning on the display of a menu in the EVF unit C27. COP38 represents a standby button for driving a recording medium C28 up to its last recording
20 area.

[0051]

Fig. 7 shows the construction of the principal portion of the image shooting apparatus according to the present invention. In the figure, G represents an silver salt information input means, with which the operator inputs information from the outside
25 of the camera. By operating this input means G, information can be inputted to a shooting information output means C01B, which will be described later, provided within the camera microcomputer C01.

[0052]

Fig. 8 shows the state of the silver salt film C08 pulled out from the film cartridge C08C. Part of the film C08 is coated with magnetic material so that information can be magnetically recorded thereupon. In this film C08, C08A represents a film leader portion including recording tracks C08AJ on which information relevant to the whole film is recorded. C08B is a portion corresponding to the first frame and comprises an image formation portion C08BK, perforations C08BP and a recording track C08BJ on which information relevant to each frame is magnetically recorded. The same pattern as this shooting-frame portion C08B is repeated up to the last end of the film as many times as the number of frames available for shooting.

[0053]

When a film C08 is newly loaded into the image shooting apparatus of the embodiment of the present invention, on detection of the loading, a silver salt film individual identification number/frame number output section C01A in the camera microcomputer C01 generates an individual identification number. The individual identification number is then transmitted to a silver-salt/video information recording/reproduction/display control unit C01D.

[0054]

The control unit C01D transmits the individual identification number to the silver salt shooting information recording section C37 of the silver salt picture shooting section in order to record the individual identification number on the recording track C08AJ of the film leader portion C08A. If an identification number is already recorded on the recording track C08AJ, the identification number is read out by the silver salt shooting information recording section C37 and is then transmitted to the control unit C01D. The control unit C01D transmits this identification number to the image processor C24 in the video signal recording/reproduction section so that the individual identification number of the loaded film C08 is displayed in the EVF unit C27.

[0055]

Similarly, when a recording medium C28 is newly loaded into the image shooting apparatus of the embodiment of the present invention, on detection of the loading, a video recording medium individual identification number output section C01C in the camera microcomputer C01 generates an individual identification number.

5 The individual identification number is then transmitted to the silver-salt/video information recording/reproduction/display control unit C01D. This control unit C01D transmits the individual identification number to the recording/reproduction converter C25 and the head C26 in the video signal recording/reproduction section so that the individual identification number is recorded in the video information
10 recording portion on the recording medium C28 and is displayed in the EVF unit C27 together with an indication that the medium is new.

[0056]

As an example, the data area (video information recording portion) of an 8mm-format videocassette tape used as a recording medium C28 is shown in Fig. 9. If an
15 identification number is already recorded on the data area, the recording/reproduction converter C25 and the head C26 read out the identification number and transmits it to the control unit C01D. The control unit C01D transmits the identification number to the image processor C24 to display the individual identification number of the loaded recording medium C28 in the EVF unit C27 (this state, in which the individual
20 identification number is displayed, is referred to as a set state).

[0057]

Next, a description will be given below as to shooting in silver salt shooting mode (P_H) with the camera in a set state. When the operation mode selecting switch COP09 is set to the P_H position, the camera microcomputer C01 sets operation buttons
25 ready for silver salt shooting mode (P_H). Simultaneously, the camera microcomputer C01 communicates with the lens microcomputer C01 and, when lens information is transmitted to the camera computer C01, the video signal shooting section, the video signal recording/reproduction section, and the EVF unit C27 are activated.

[0058]

When the user recognizes a subject in the EVF unit C27 and presses the release button COP01 halfway in, thereby bringing the camera into an S1ON state, the outputs of the brightness detector C12 and the focus detector C02 are transmitted to the camera microcomputer C01. A calculation section C01F in the camera microcomputer C01 processes those outputs with calculation to determine shooting conditions based on the lens information and the information on settings of the operation unit COP.

[0059]

When the release button COP01 is pressed further in, thereby bringing the camera into an S2ON state, the aperture diaphragm L11 and the shutter C07 are controlled according to the determined shooting conditions, and silver salt shooting is performed. On completion of silver salt shooting, the film advancing controller C09 of the silver salt picture shooting section advances the film C08 one frame forward. Here, the shooting conditions and shooting information of the shot that has just been taken are recorded on the magnetic track C08BJ corresponding to the frame of the shot on the film C08. Table 1 shows an example of shooting information.

[0060]

In Table 1 below, the items of information listed under A are those which are most desirably recorded. The print aspect ratio is an item needed for specifying the aspect ratio when an image is printed and, as shown in Fig. 10, there are three types H, C and P of print aspect ratios. Fig. 10 shows the exposure area and the print sizes on a film for a silver salt film system having three formats 16:9, 2:3, and 1:3 disclosed in Japanese Laid-open Patent Application No. H7-84309. In this silver salt film system, the print size H is slightly smaller than the exposure area. In comparison with the print size H, the print size C is narrower, that is, horizontally smaller in the figure, and the print size P is shorter, that is, vertically smaller in the figure.

[0061]

Moreover, in Table 1, the items of information listed under B are those which

are recorded according to the settings made by the operation unit COP. These items of information are gathered from a shooting information output section C01B and the video recording medium individual identification number output section C01C to the control unit C01D first, before they are supplied to the silver salt information recording section C37 in accordance with the settings made by the operation unit COP to be recorded on the film C08.

[0062]

[TABLE 1]

A	B
<ul style="list-style-type: none"> • Date and time • Recording location of information upon printing procedure • Print aspect ratio • Identification number of the corresponding recording media 	<ul style="list-style-type: none"> • Light source information (WB information) • Number of prints • Lens focal length • Aperture value • Shutter speed • Exposure compensation value • Film ISO sensitivity • Title • TV-display aspect ratio • Subject brightness • Photometry method

10

[0063]

Simultaneously, the information is also recorded in a primary memory C01E provided in the camera microcomputer C01. The items to be recorded here may be the same as those recorded on the film C08, or different items may be selected. The primary memory C01E is required to have a capacity sufficient for storing information throughout a whole role of film, so that it can keep information at least until films are exchanged.

15

[0064]

Simultaneously with shooting, in the video signal recording/reproduction

section, an image signal obtained almost simultaneously with the shooting is stored in an image memory 75 in the image processor C24. When the recording medium C28 becomes ready for recording, the image signal is recorded on the medium as a still image together with information outputted from the control unit C01D. The items of information thus recorded are shown in Table 2 below.

[0065]

[TABLE 2]

A	B
<ul style="list-style-type: none">• Date and time• Recording location of information upon printing procedure• Print aspect ratio• Identification number of the corresponding film• Frame number of the corresponding film	<ul style="list-style-type: none">• Light source information (WB information)• Number of prints• Lens focal length• Aperture value• Shutter speed• Exposure compensation value• Film ISO sensitivity• Subject brightness• Photometry method• Title• TV-display aspect ratio

[0066]

In Table 2 above, the items of information listed under A are those which are most desirably recorded. The items of information listed under B are those which are recorded according to the settings made by the operation unit COP. These items of information are gathered from the shooting information output section C01B and the silver salt film individual identification number/frame number output section C01A to the control unit C01D first, before they are outputted to the recording/reproduction converter C25 in accordance with the settings made by the operation unit COP to be recorded on the recording medium C28.

[0067]

According to one method of recording the information onto the recording medium C28, the information is recorded in the data area shown in Fig. 9. As another method of recording the information, Fig. 11 shows an example of recording and reproducing the information in the form of characters onto and from a video recording medium. According to this method, the information may be recorded in the form of characters on the screen as shown at (A) in Fig. 11, or on the screen ((C) in Fig. 11) immediately following the screen of a still image ((B) in Fig. 11) as shown at (B) and (C) in Fig. 11. Further, it is also possible to simultaneously record the information both in the form of characters and in the data area.

[0068]

Here, a still image is so recorded that it can be adapted for a plurality of print aspect ratios in case the aspect ratio is changed in edit mode (E) described later. Moreover, on the EVF screen immediately after shooting, the information in the form of characters and the subject image are displayed in a mixed fashion on the same screen as shown at (A) in Fig. 13, and it is possible to rewrite the shooting information as described later.

[0069]

Next, a description will be given below as to shooting in simultaneous shooting mode (P_M) with the camera in a set state. When the operation mode selecting switch COP09 is set to the P_M position, the camera microcomputer C01 sets operation buttons ready for simultaneous shooting mode (P_M). Simultaneously, the camera microcomputer C01 communicates with the lens microcomputer C01, and lens information is transmitted to the camera microcomputer C01.

[0070]

Thereafter, the focus detector C02 and the brightness detector C12 are activated to perform AE (automatic exposure adjustment) and AF (automatic focus adjustment) operations. Further, the video signal shooting section, the video signal recording/reproduction section, and the EVF unit C27 are activated to display a subject image

captured through the taking lens in the EVF unit C27. When the user recognizes a subject in the EVF C27 and operates the recording ON/OFF button, recording of a movie is started.

[0071]

5 In the movie-recording state, when the release button COP01 is pressed halfway in (to establish the S1ON state), the outputs of the focus detector C02 and the brightness detector C12 are transmitted to the camera microcomputer C01. The calculation section C01F processes those outputs with calculation to determine shooting conditions based on the lens information and the information on settings of
10 the operation unit COP.

[0072]

When the release button COP01 is pressed further in to establish the S2ON state, the aperture diaphragm L11 and the shutter C07 are controlled according to the determined shooting conditions, and silver salt shooting is performed. On completion of
15 silver salt shooting, the film advancing controller C09 of the silver salt picture shooting section advances the film C08 one frame forward. Here, the shooting conditions and shooting information of the shot that has just been taken are recorded on the magnetic track C08BJ corresponding to the frame of the shot on the film C08. Meanwhile, recording of the movie is continued. Table 3 below shows the items of shooting
20 information in this case.

[0073]

[TABLE 3]

A	B
<ul style="list-style-type: none">• Date and time• Recording location of information upon printing procedure• Print aspect ratio• Identification number of the corresponding recording	<ul style="list-style-type: none">• Light source information (WB information)• Number of prints• Lens focal length• Aperture value• Shutter speed

medium	<ul style="list-style-type: none"> • Exposure compensation value • Film ISO sensitivity • Subject brightness • Photometry method • Title • TV-display aspect ratio
--------	--

[0074]

In Table 3 above, the items of information listed under A are those which are most desirably recorded. The items of information listed under B are those which are recorded according to the settings made by the operation unit COP. These items of information are gathered from the shooting information output section C01B and the video recording medium individual identification number output section C01C to the control unit C01D first, before they are outputted to the silver salt information recording section C37 according to the settings made by the operation unit COP and are recorded on the film C08. Simultaneously, the information is also recorded in the primary memory C01E in the camera microcomputer C01. The items recorded here may be the same as those recorded on the film C08, or different items may be selected.

[0075]

Simultaneously with shooting, in the video signal recording/reproduction section, an image signal obtained almost simultaneously with the shooting is recorded together with the information outputted from the control unit C01D. The items of the recorded information are shown in Fig. 4 below.

[0076]

[TABLE 4]

A	B
<ul style="list-style-type: none"> • Date and time • Recording location of information upon printing procedure 	<ul style="list-style-type: none"> • Light source information (WB information) • Number of prints • Lens focal length

<ul style="list-style-type: none"> • Print aspect ratio • Identification number of the corresponding film • Frame number of the corresponding film • In process of movie shooting 	<ul style="list-style-type: none"> • Aperture value • Shutter speed • Exposure compensation value • Film ISO sensitivity • Subject brightness • Photometry method • Title • TV-display aspect ratio
---	---

[0077]

In Table 4 above, the items of information listed under A are those which are most desirably recorded. The items of information listed under B are those which are recorded according to the settings made by the operation unit COP. These items of information are gathered from the shooting information output section C01B and the silver salt film individual identification number/frame number output section C01A to the control unit C01D first, before they are outputted to the recording/reproduction converter C25 according to the settings made by the operation unit COP and are recorded on the recording medium C28. The items recorded here may be the same as those recorded on the film C08, or different items may be selected.

[0078]

According to one method of recording the information onto the recording medium C28, the information is recorded on the data area shown in Fig. 9. Alternatively, the information may be recorded in the form of characters on the screen as shown at (A) in Fig. 11, or on the screen ((C) in Fig. 11) immediately following the screen of a still image ((B) in Fig. 11) as shown at (B) and (C) in Fig. 11. Further, it is also possible to simultaneously record the information both in the form of characters and in the data area. It is to be noted, however, that screens containing only information in the form of characters ((C) in Fig. 11) are skipped during reproduction of a movie.

[0079]

The recording operation activated by operating the release button COP01 while the camera is in the video recording standby state or while movie-video recording is not performed in simultaneous shooting mode (P_M) is the same as the recording operation in silver salt shooting mode (P_H). Recording performed during shooting has been described hereinbefore. Hereinafter, a description will be given as to reproduction and editing. The state in which some shooting has been performed in the set state is hereinafter referred to as "the shooting state". In this shooting state, when the operation mode selecting switch COP09 is set to the video reproduction mode (V) position, the camera microcomputer C01 sets operation buttons ready for the video reproduction mode (V).

[0080]

In this set state, a press of the rewind button COP30 rewinds the videocassette tape serving as the recording medium C28, a press of the stop button COP33 stops rewinding, and thereafter, a press of the playback button COP31 starts reproduction. The image signal recorded on the recording medium C28 and the shooting information recorded in the data area are read out by the head C26, decoded by the recording/reproduction converter C25, processed by the image processor C24, and then displayed in the EVF unit C27. Here, the display in the EVF unit C27 is performed according to the shooting information recorded in the data area of the recording medium C28 in the following manner.

[0081]

1) If no information is available as to still shooting, an ordinary video is reproduced.

2) If information is available as to still shooting, and a movie is not being shot, a still image is reproduced. For example, screens as shown at (A) to (C) in Fig. 11 are displayed for approximately fifteen seconds.

3) If information is available as to still shooting, and a movie is being shot, an ordinary video is reproduced. However, a shutter sound accompanying shooting is

not suppressed but kept alive. Alternatively, a still image is reproduced as in 2) above.

[0082]

In the shooting state, when the operation mode selecting switch COP09 is set to the edit mode (E) position, the camera microcomputer C01 sets operation buttons
5 ready for the edit mode (E). Simultaneously, the control unit C01D reads out the shooting information as to the loaded film C08 recorded in the primary memory C01E in the camera microcomputer C01, transmits the information to the image processor C24, and displays the information as index information in EVF C27 as shown in Fig. 12. As index information, shooting information of each frame is displayed together with
10 the period from the first frame to the last frame of the film C08.

[0083]

In this state, when the playback button COP31 is pressed, the camera microcomputer C01 instructs the recording medium driver C36 to feed the tape backward, and reproduces the data in the data area through the head C26. In this
15 process of reproduction, when information as to still shooting is found on the recording medium, feeding of the tape is stopped for a while so that the information of a still image and the shooting information are reproduced and displayed in the EVF unit C27. Search for information as to still shooting is realized, for example, by reproducing time codes to rewind the tape up to the same time point as the time inside
20 the primary memory C01E and then reproducing data in the data area at a slow speed.

[0084]

Still images are reproduced as shown at (A) to (C) in Fig. 11. A still image is reproduced for approximately 15 seconds and, when this predetermined time passes away, the next image is reproduced. It is possible to rewind the tape during reproduc-
25 tion in order to search for information of the next still image. In this case, when the stop button COP33 is pressed during reproduction, the camera microcomputer C01 stops the search for the next still image, and continues reproducing the still image that has been reproduced until that time, simultaneously superimposing the shooting

information thereupon as shown at (A) in Fig. 13. Alternatively, an image to be edited with the fast-forward button and the rewind button in a screen as shown in Fig. 12 is first selected and is then searched for with a pause button. The searched image is displayed as shown at (A) in Fig. 13. Items to be edited can be selected with the
5 fast-forward button COP32 and the rewind button COP30.

[0085]

In order to rewrite a selected item, the screen is switched to an edit screen by pressing the pause button (set) COP34. A state of the screen observed after the print aspect ratio is selected as an item to be edited and the pause button COP34 is pressed
10 in the screen shown at (A) in Fig. 13 is shown at (B) in Fig. 13. Here, the edge lines of the frames H, C and P appear on the screen. In this state, when the frame C is selected with the playback button COP31, the display of the portions other than the frame of the print aspect ratio C changes from colored to monochrome.

[0086]

Here, when the pause button COP34 is pressed, the print aspect ratio is
15 switched to C, the data in the primary memory C01E is rewritten, and the screen returns to the state shown at (A) in Fig. 13. Simultaneously, the camera microcomputer C01 instructs the silver salt picture shooting section to rewrite the aspect ratio of the corresponding frame, so that the film C08 is rewound up to the
20 corresponding frame and its aspect ratio is rewritten by the silver salt shooting information recording section C37.

[0087]

Operations on the screen of the EVF C27 unit are achieved by means of a silver salt information input section G. When the screen shown at (A) in Fig. 13 is
25 displayed, a press of the playback button COP31 reproduces the next still image. When the screen shown at (A) in Fig. 13 is displayed, a press of the stop button COP33 returns the screen to an index screen as shown in Fig. 12. When the screen shown in Fig. 12 or Fig. 13 is displayed, switching of the operation mode selecting switch COP09

from the edit mode (E) position to another position leads the camera microcomputer C01 to cause the film C08 and the recording medium C28 to be driven up to their standby positions (for example, up to the top of the unexposed portion of the film C08, and up to the top of the unrecorded portion of the recording medium C28).

5 [0088]

If the control is left as described above, the index data of a film C08 with which shooting is finished is kept stored in the primary memory C01E, causing shortage of available memory. In this case, by pressing the film cartridge exchange button COP08, the primary memory C01E is reset to allow exchange of films C08.

10 [0089]

However, since the above operation erases index data of a film C08 with which shooting is completed, it is necessary to create a new set of index data. The operation to achieve this will be described below. Although the following description deals with a tape-form recording medium C28, the same description is applicable to a disk-form recording medium.

15

[0090]

Fig. 14 shows an example of creating index data on a tape-form recording medium. As shown in the figure, an area for recording index data is provided beforehand at the top or end of the tape. Incidentally, in the case of a disk-form recording medium C28, an area 80 for recording index data is provided in the innermost or outermost portion thereof.

20

[0091]

Under the condition that the operation mode selecting switch COP09 is in the edit mode (E) position, when the film cartridge button COP08 is pressed, the camera microcomputer C01 instructs the recording medium driver C36 to feed the tape backward, and reproduces the data in the data area through the head C26. In this process of reproduction in the reverse direction, when information as to still shooting is found on the recording medium, feeding of the tape is stopped for a while so that the

25

information of a still image is reproduced in the forward direction and stored in the image memory in the image processor C24. Then, a next set of information as to still shooting is searched for and, when information as to still shooting is found, the information of a still image is stored in the image memory in the same manner as described above.

[0092]

When still images are stored as described above until reaching the predetermined capacity of the image memory, the tape is driven up to its index area so that the information as to still images in the image memory and the corresponding shooting information are recorded therein. Here, the shooting information refers to that stored in the primary memory C01E. When the above process is repeated until the index data of the currently loaded film C08 is completely created, the film cartridges C08C can be exchanged.

[0093]

Similarly, in order to exchange tapes, the deck open button COP03 is operated with the operation mode selecting switch COP09 set in the edit mode (E) position. Then the index data of the currently loaded film C08 is created on the tape and, thereafter, tapes can be exchanged.

[0094]

[Advantages of the Invention]

As described above, according to the present invention, a silver salt film individual identification number/frame number output means outputs an individual identification number and a frame number to a silver salt film used as a recording medium for a silver salt picture shooting section, a silver salt information recording means records the individual identification number outputted from the silver salt film individual identification number/frame number output means onto the silver salt film, and a video information recording means records the individual identification number and the frame number outputted from the silver salt film individual identification

number/frame number output means into the image signal that corresponds to the individual identification number and the frame number. Thus, the film number is written onto the film, and the film number and the frame number is written into the corresponding image signal, and this makes it possible to confirm, immediately or in a certain time lag after shooting, the pictures recorded as image signals by the still camera, and also to record correspondence-related information to form a database.

[0095]

According to claims 2 to 4, the silver salt information recording means or the video information recording means is capable of recording various items of information other than information outputted from the silver salt film individual identification number/frame number output means. This helps enhance the usefulness of the database by making it possible to store therein various items of shooting information, and makes it possible to specify the title and the number of prints.

[0096]

According to claim 5, the various items of information are converted into a character signal so that they can be recorded as an image signal. This makes the database easy to grasp.

[0097]

According to claim 6 or 7, during silver salt shooting or simultaneous shooting, the video signal recording means records a video corresponding to said silver salt picture, and the video information recording means records information corresponding to said silver salt picture outputted from the silver salt film individual identification number/frame number output means, or records this information together with various items of information as to said silver salt picture. This makes it possible to cope with both silver salt shooting and simultaneous shooting.

[0098]

According to claim 8, the silver salt information recording means records the

individual identification number of the video recording medium outputted from a video recording medium individual identification number output means onto a corresponding silver salt picture shooting section, and the video information recording means records the individual identification number of the video recording medium.

5 This makes it possible to use one film with a plurality of recording media.

[Brief Description of the Drawings]

[Fig. 1]

10 An outline construction diagram showing a video camera incorporating a still camera embodying the present invention.

[Fig. 2]

A plan view showing the appearance of the camera of the embodiment.

[Fig. 3]

A rear view showing the appearance of the camera of the embodiment.

15 [Fig. 4]

A front view showing the appearance of the camera of the embodiment.

[Fig. 5]

A bottom view showing the appearance of the camera of the embodiment.

[Fig. 6]

20 A detail plan view of the operation indication unit of the camera of the embodiment.

[Fig. 7]

25 A block diagram showing the interconnection between the camera microcomputer and various portions of the camera of the invention, with respect to the flow of information.

[Fig. 8]

A diagram showing the state of the silver salt film pulled out from the film cartridge, schematically illustrating how information is recorded onto a magnetic

layer.

[Fig. 9]

A diagram showing the data area on an 8mm-format videocassette tape.

[Fig. 10]

- 5 A detail diagram showing the exposure area and the print sizes of a film conforming to one film system.

[Fig. 11]

A diagram showing how information is recorded onto and reproduced from the video recording medium in the form of characters.

- 10 [Fig. 12]

A diagram showing an example of the index screen displayed in the EVF unit.

[Fig. 13]

A diagram showing examples of the edit screen.

[Fig. 14]

- 15 A diagram showing an example of index data created for a tape-form recording medium.

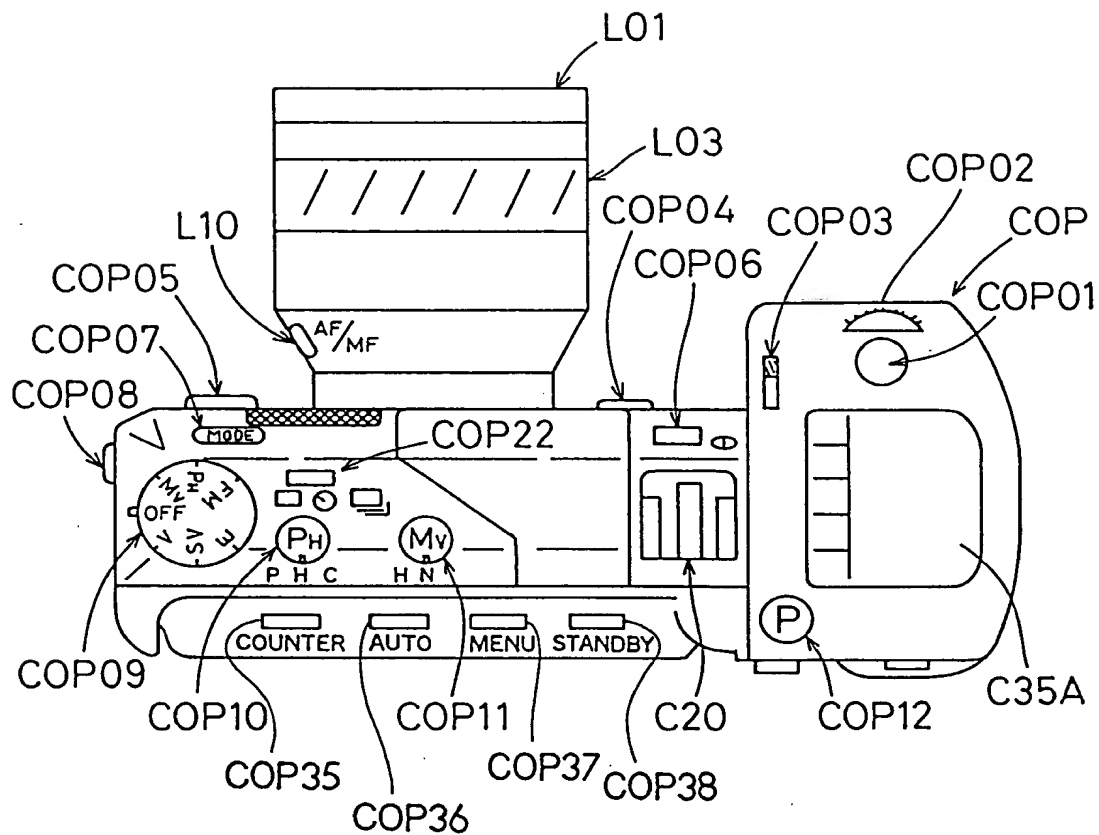
[Description of the Reference Designations]

- | | | | | |
|------|---|---|------------------------------|-----------------------|
| L | Main lens | L01 | Focusing operation ring | |
| L02 | Focusing operation ring condition detector | L03 | Zooming operation ring | |
| 20 | L04 | Zooming operation ring condition detector | L05 | Focal length detector |
| L06 | Lens microcomputer | L07 | Zooming motor | |
| L08 | Zooming motor monitor | L09 | Focusing motor | |
| L10 | Sound processor | L11 | Main lens aperture diaphragm | |
| L12 | Main lens aperture diaphragm controller | L13 | Stationary barrel | |
| 25 | C | Camera body | | |
| C01 | Camera microcomputer | | | |
| C01A | Silver salt film individual identification number/frame number output section | | | |
| C01B | Shooting information output means | | | |

	C01C	Video recording medium individual identification number output means		
	C01D	Silver-salt/video information recording/reproduction/display control unit		
	C01E	Primary memory	C01F	Calculation section
	C02	Focus detector	C03	Camera-shake detector
5	C04	Pellicle mirror	C05	AF auxiliary mirror
	C06	Shutter driver	C07	Shutter
	C08	Film	C08A	Film leader portion
	C08B	Portion corresponding to a frame	C08C	Film cartridge
	C09	Film advancing controller	C10	Condenser lens
10	C11	Reflecting mirror	C12	Brightness detector
	C13	ND filter	C14	Relay lens
	C15	ND filter controller	C16	Optical low-pass filter
	C17	IR cut filter	C18	Relay aperture diaphragm
	C19	Relay aperture diaphragm controller	C20	Accessory shoe
15	C21	CCD image sensor	C22	Image forming processor
	C23	CCD driving pulse generator	C24	Image processor
	C25	Recording/reproduction converter	C26	Head
	C27	EVF unit	C28	Recording medium
	C29	Battery	C30	Data/power-supply contacts
20	C31	Sound processor	C32	Output port
	C33	Speaker	C34	Stereophonic microphone
	C35	Operation indication unit	C35A	Large-size liquid crystal display panel
	C35B	Lamp	C36	Recording medium driver
	C37	Silver salt information recording section	C40	Battery cavity lid
25	C41	Tripod hole		
	COP	Operation unit	COP01	Release button
	COP02	Mode switching dial	COP03	Deck open button
	COP04	Still-picture-preview/fade-out button		

	COP05 Lens exchange button	COP06 Red-eye reduction button
	COP07 Scene select button	COP08 Film cartridge exchange button
	COP09 Operation mode selecting switch	
	COP10 Silver salt shooting frame aspect ratio changing switch	
5	COP11 Video movie frame size changing switch	
	COP12 Program button	COP13 Zoom button
	COP14 Aperture diaphragm opening button	
	COP15 Camera-shake compensation ON/OFF and exposure compensation button	
	COP16 First liquid crystal unit pop-up button	
10	COP17 Forced flashing button	
	COP18 Message display ON/OFF button	
	COP19 Sound-volume/picture-quality adjustment button	
	COP20 Second liquid crystal pop-up button	
	COP21 Automatic rewinding button	
15	COP22 Self-timer button	COP30 Rewind button
	COP31 Playback button	COP32 Fast-forward button
	COP33 Stop button	COP34 Pause button
	COP35 Counter ON/OFF button	COP36 Automatic button
	COP37 Menu button	COP38 Standby button
20	F Flash-and-light	F01 Flash-and-light operational controller
	G Silver salt information input means	

[Fig. 2]



COP: Operation Unit

COP01: Release button

COP02: Mode switching dial

COP07: Scene select button

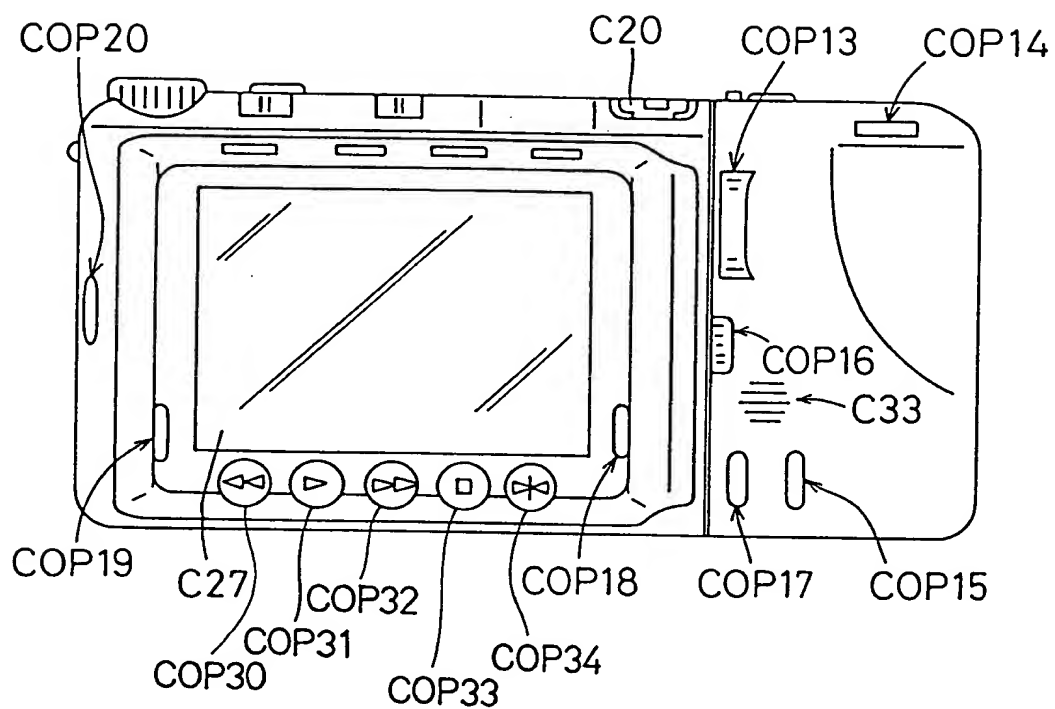
COP09: Operation mode selecting switch

COP10: Silver salt shooting frame aspect ratio changing switch

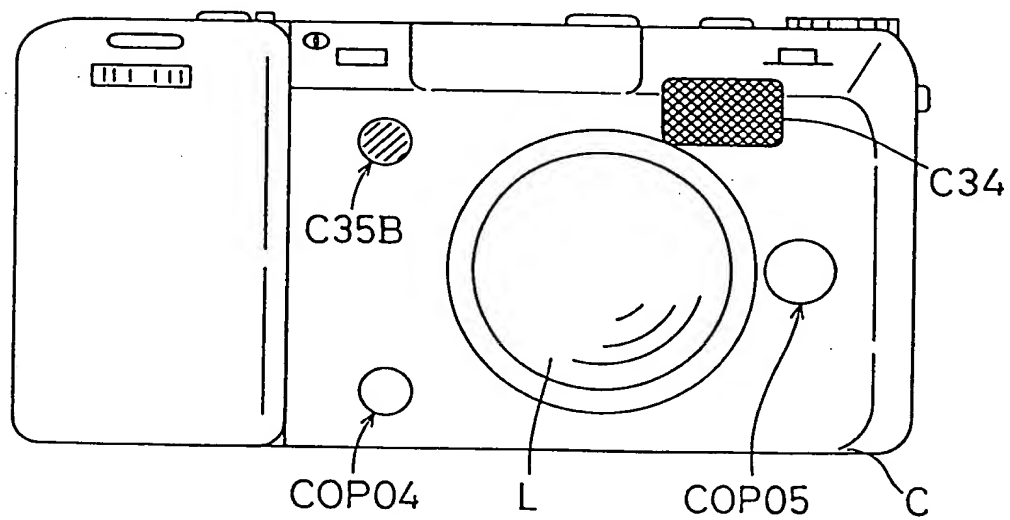
COP11: Video movie frame size changing switch

COP12: Program button

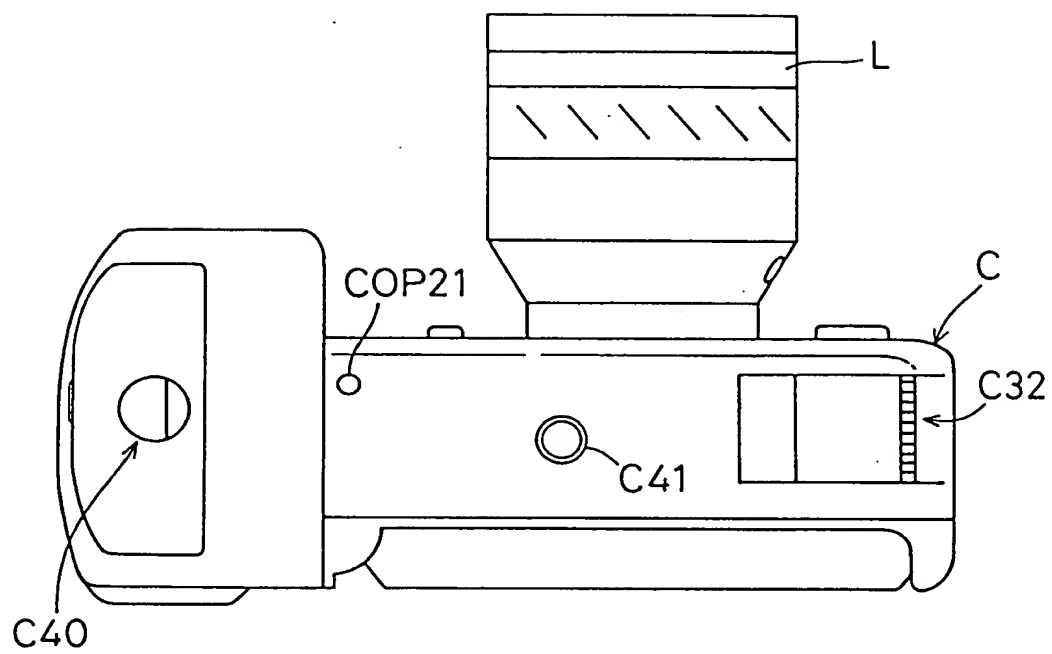
[Fig. 3]



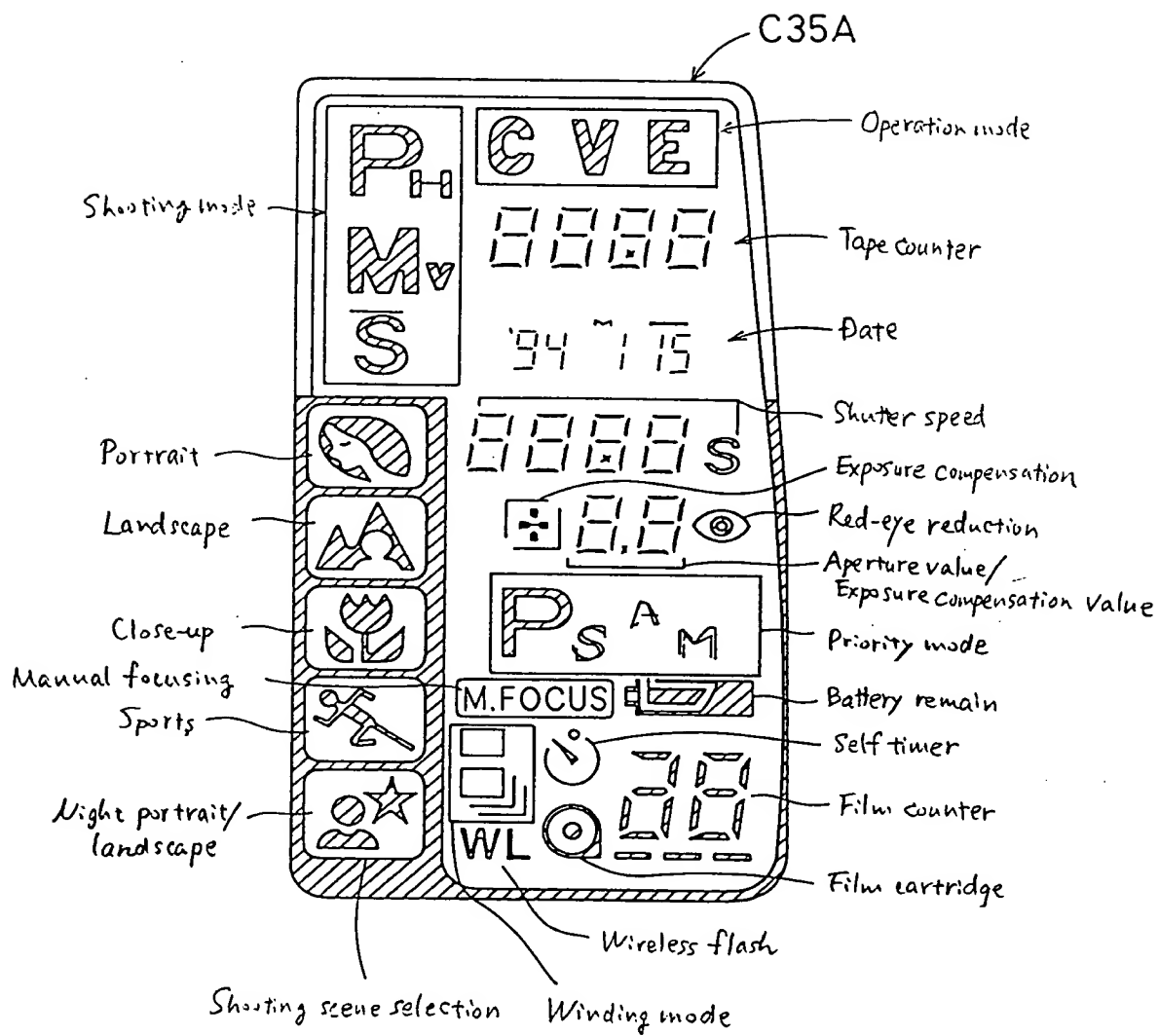
[Fig. 4]



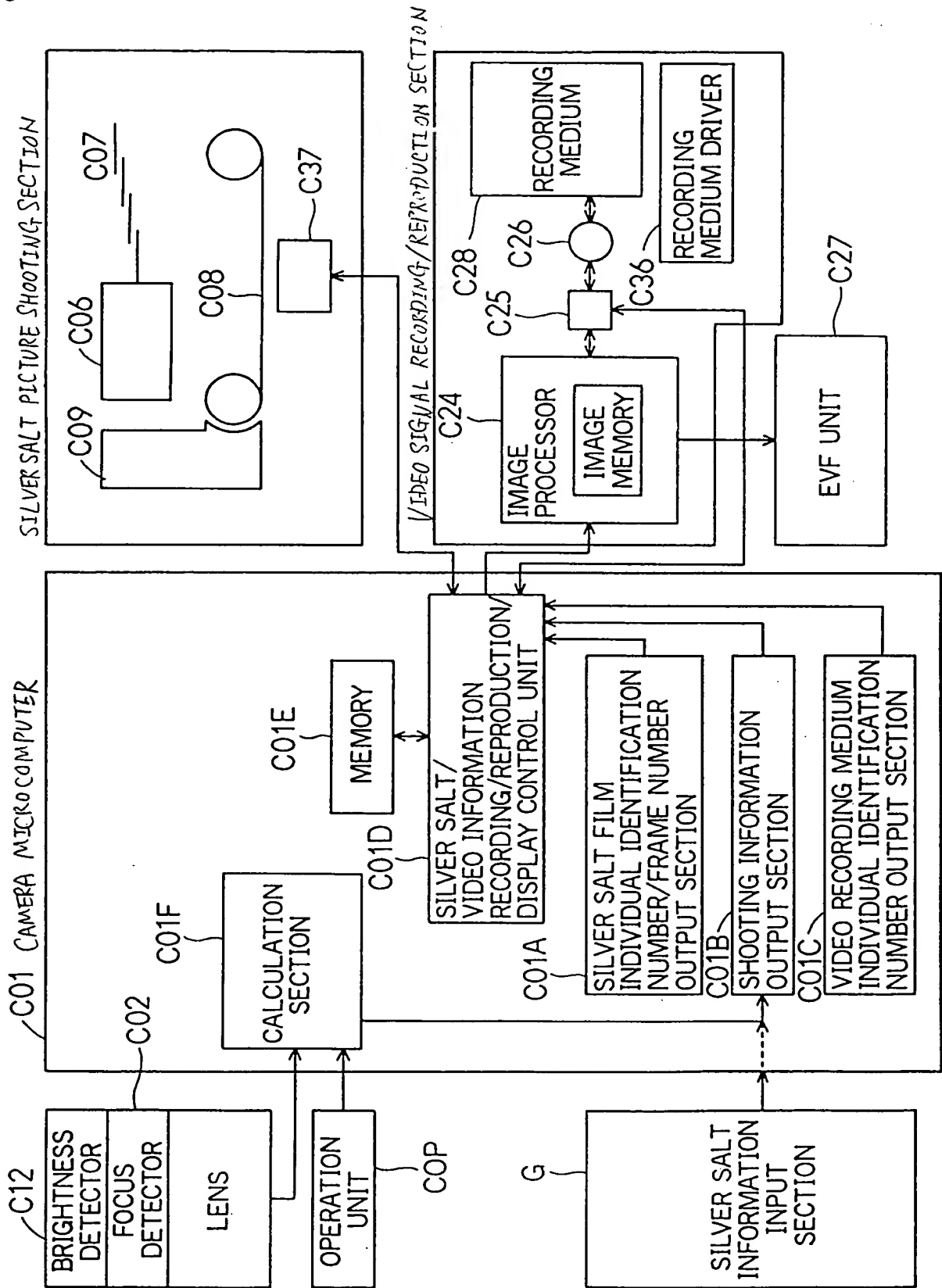
[Fig. 5]



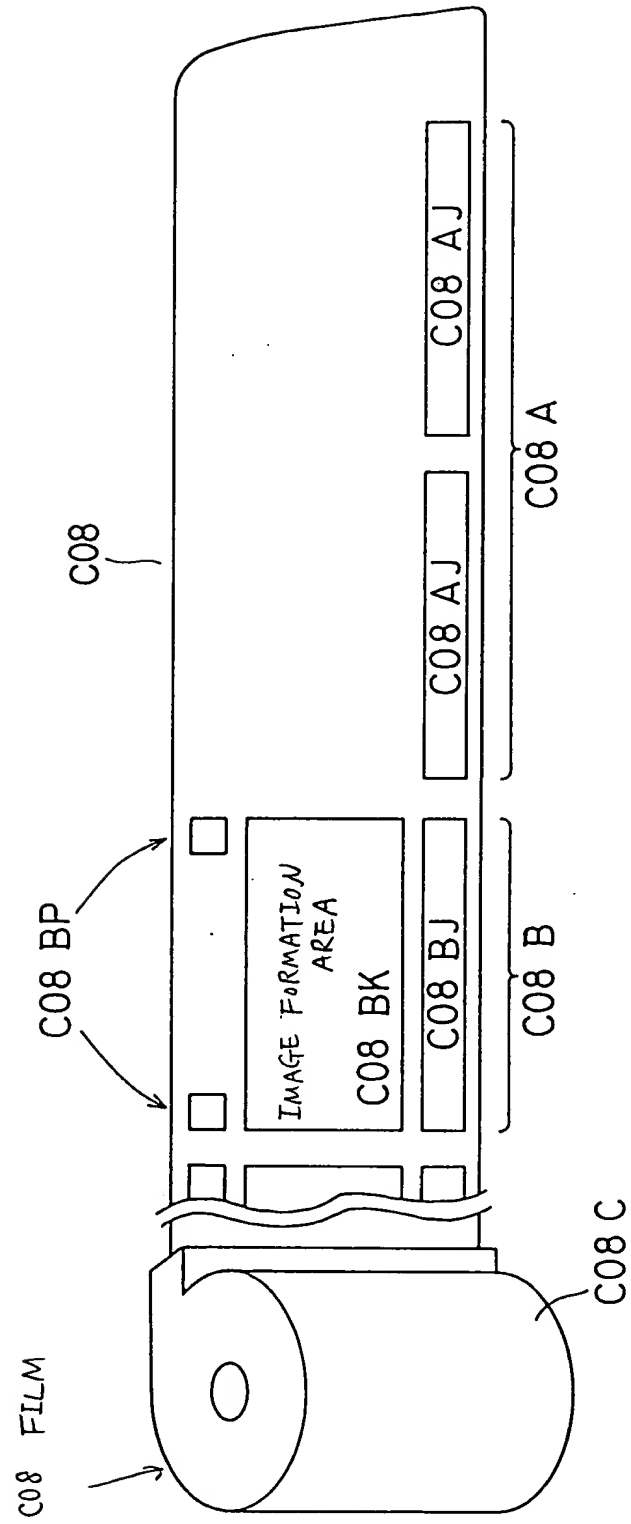
[Fig. 6]



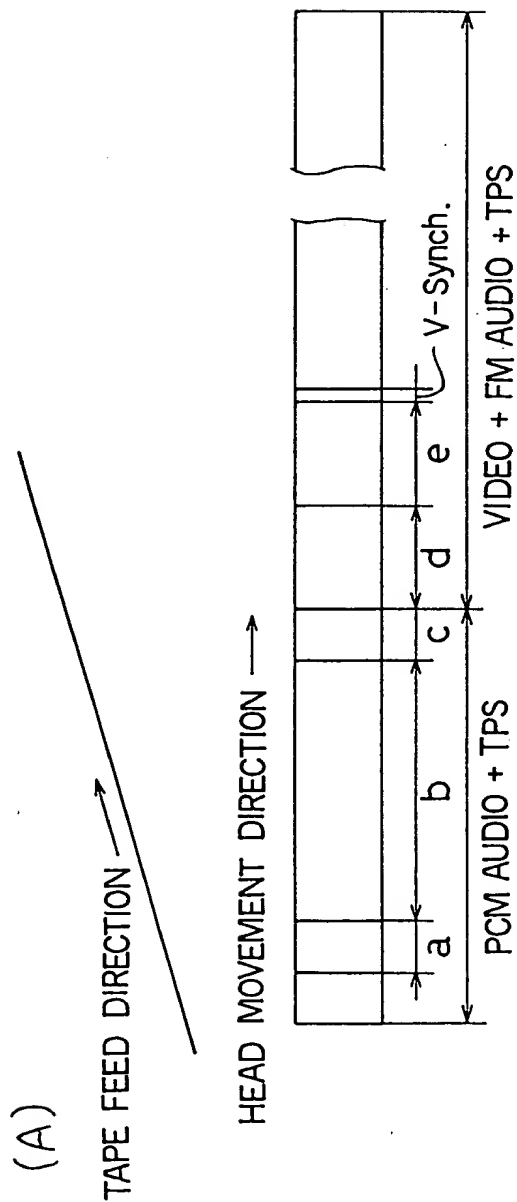
[Fig. 7]



[Fig. 8]



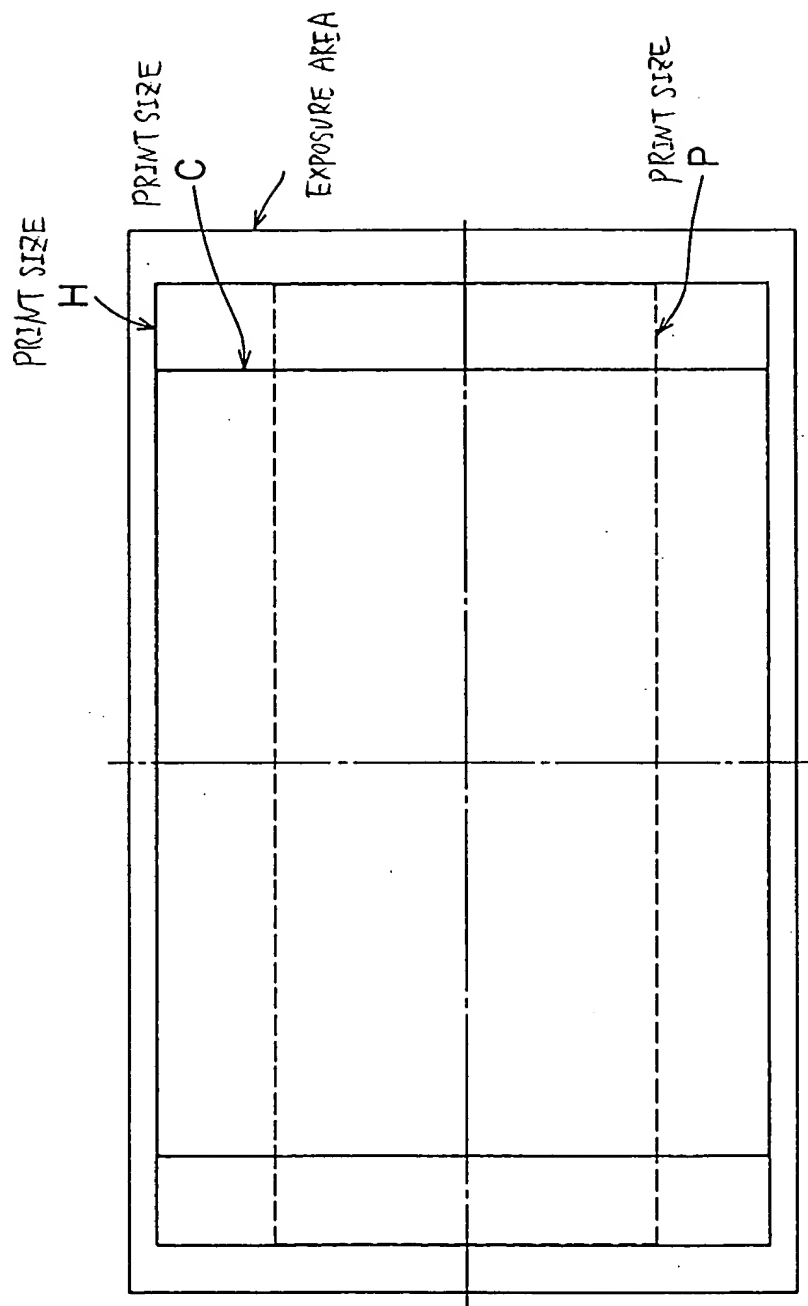
[Fig. 9]



(B)

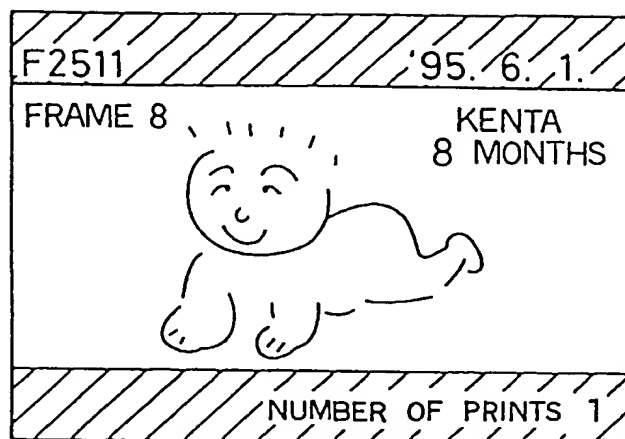
CONTENT	525-Line/60-Field System	625-Line/50-Field System
a Minimum Recording Time	2.06° (3.0H)	2.09° (3.6H)
b Data Area	26.32° (38.4H)	26.29° (45.6H)
c Blank After Recording	2.06° (3.0H)	2.09° (3.6H)
d Video Overlap	2.62° (3.8H)	2.62° (4.5H)
e V-Synch.1	6H	7H

[Fig. 10]

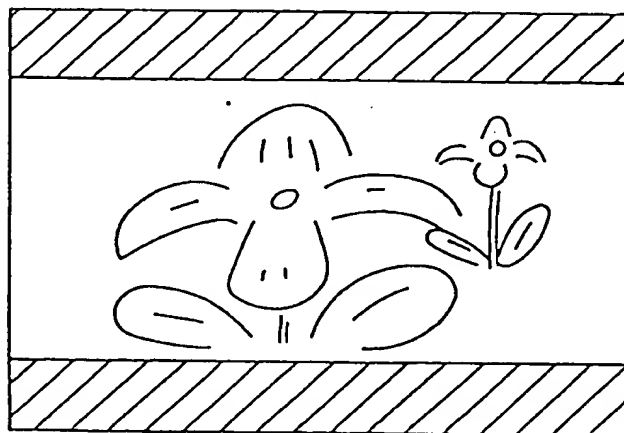


[Fig. 11]

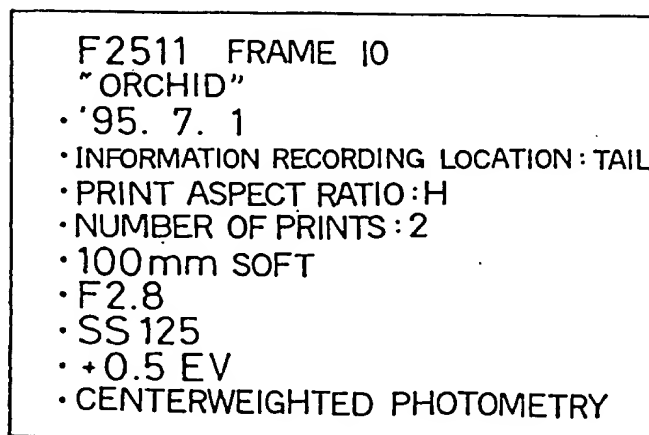
(A)



(B)



(C)



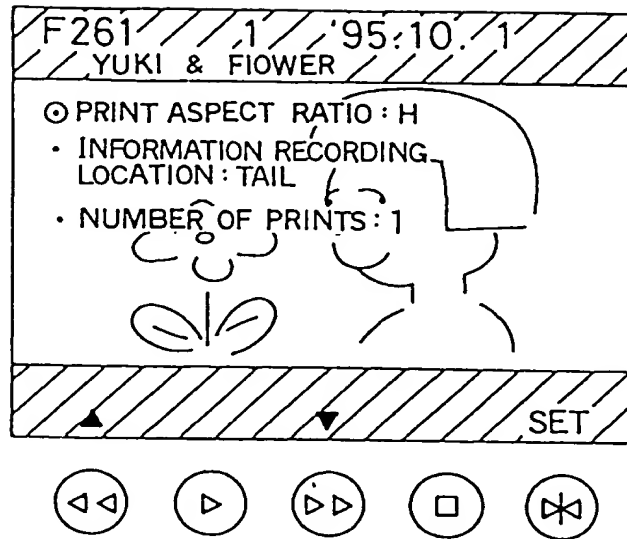
[Fig. 12]

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MT. FUJI					
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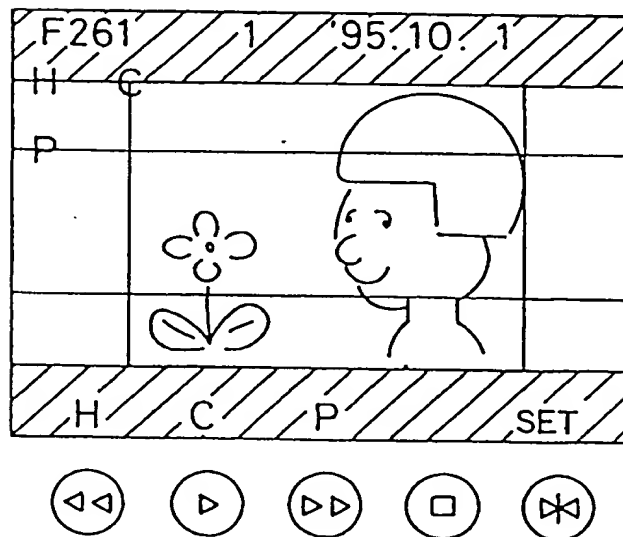


[Fig. 13]

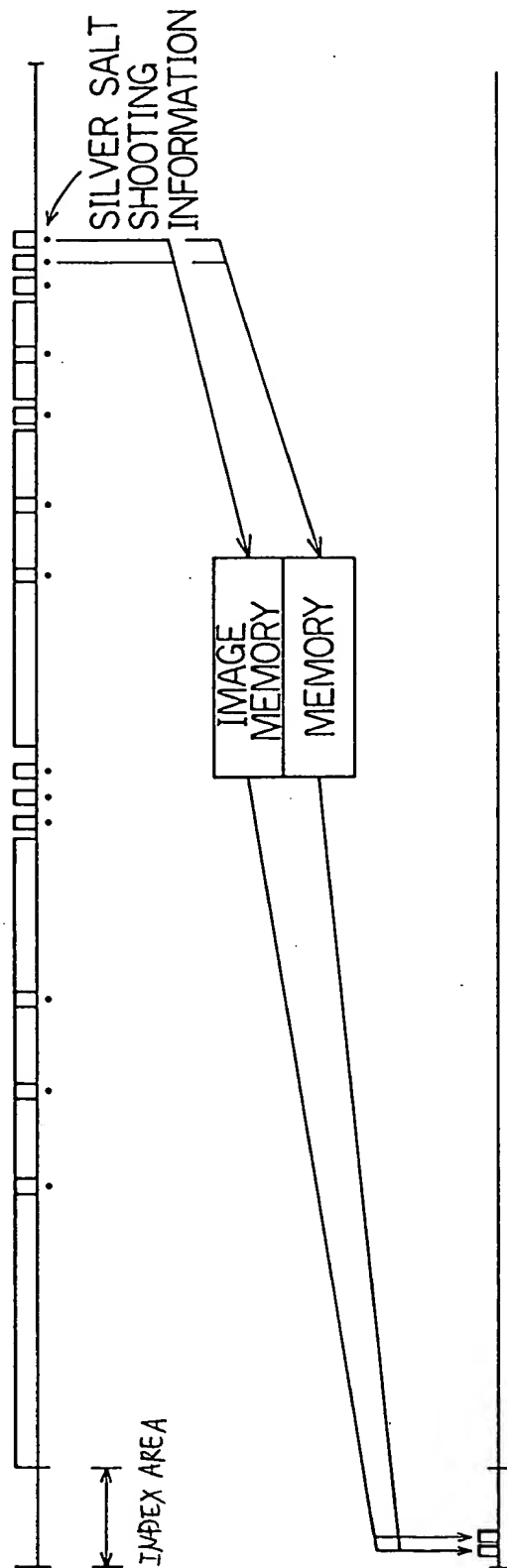
(A)



(B)



[Fig. 14]



[Title of the Document] Abstract

[Abstract]

[Object] To provide an image shooting apparatus that achieves easy retrieval of data from a database or the like.

5 [Features] After silver salt shooting, shooting conditions and other items of information are assembled from a shooting information output means C01B and from a video recording medium individual identification number output means C01C to a control unit C01D. The thus assembled data is, in accordance with the settings made in a operation unit COP, outputted to a silver salt information recording section
10 C37 and recorded on a film C08. Simultaneously, the data is stored in a primary memory C01E, and an individual identification number and frame numbers are recorded into an image signal as information signals. Simultaneously, the recording of the data is achieved by first assembling the data from the shooting information output means C01B and from a silver salt film individual identification number/frame
15 number output means C01A to the control unit C01D, and then outputting the data, in accordance with the settings made in the operation unit COP, to a recording/reproduction converter C25 so that the data will be recorded on a recording medium C28.

[Selected Figure] Fig. 7

[Title of the Document] Ex-officio Correction Data

[Corrected Document] Petition

<Acknowledged and Additional Information>

[Applicant] Petitioner

[Identification Number] 000006079

[Address] Osaka Kokusai Bldg., 3-13,
2-Chome, Azuchi-Machi, Chuo-ku,
Osaka-Shi, Osaka-Fu

[Name or Corporate Name] Minolta Co., Ltd.

[Agent] Petitioner

[Identification Number] 100085501

[Address] Sano Patent Office
Tenmabashi-Yachiyo Bldg. Bekkan
2-6, Tenmabashi-Kyomachi,
Chuo-Ku, Osaka-Shi, Osaka-Fu

[Name or Corporate Name] Shizuo Sano